

NOVA's Ghost in Your Genes

Answer the following questions as you watch the video

1. Do you inherit anything other than genes from your parents?
2. What is the name of the process that switches genes on and off?
3. What type of mice did scientists study to investigate gene expression?
4. What is the name of the vast network in the body that controls gene expression?
5. What does epigenetics mean, literally?
6. What do skin, eyes, teeth, hair and organs have in common?
7. All of your cells contain the exact same genes. So, what makes your cells different?
8. How did researchers turn off an overactive agouti gene in mice?
9. What links early stage development to disease susceptibility?
10. Dr. Manel Esteller is a scientist in the video, what did he study?
11. What might be a reason why the epigenome changes?
12. How do nurtured mice compare to non-nurtured mice?
13. In what gland is the gene that lowers stress hormones found?
14. How did Drs. Szyf & Meaney change the epigenome of a rat?
15. List some things that stress hormones promote?
16. List causes of genetic damage.
17. What are stem cells?
18. What disease does Walter Kauffman Study?
19. What did he notice in the brain scans of normal and affected individuals?
20. In the video, 2 scientists studied the family history to connect poor nutrition of grandparents to health of their grandchildren. In what country is this village?

21. Fill in the blank: The events that happen in one generation can affect another _____ later.

22. What disease does Dr. Pembry study?

23. The _____ supply can affect a transgenerational response.

24. The Human Epigenome Project will tell us how genes are _____.

25. Why must you be a good steward of your epigenome?

Answer free response questions below after the video.

1. What is epigenetics?

2. The program raises some social and ethical implications regarding epigenetic effects. While scientists still don't know exactly what affects the epigenome or how it may be passed down to future generations, if lifestyle choices or environmental effects are passed down, describe what you would consider changing about your current lifestyle for the benefit of any potential children you may have?

3. How certain would you need to be that your epigenome was being affected before you make the change? Why?